Warren, Dee

From Christiansen Jim@epamail epa gov
Sent Wednesday April 17 2002 4 50 PM
To Warren Dee
Cc Montera Jeff Weis Chris@epamail epa gov Goldade Mary@epamail epa gov
Subject Re Libby CSS DQOs

Added

Section 3 jimc doc Section 3 doc

Dee I think this is the right direction I put a few minor red lines on there This coupled with revisions to QA/QC sections should make it a stronger document Chris may have some recommendations on further tie ins to site conceptual model

Chris - This should give you an idea of where I was coming from prior to our meeting tomorrow

Thanks JIm

(See attached file Section 3-jimc doc)

'Warren Dee"
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m>

To Jim Christiansen/EPR/R8/USEPA/US@EPA
cc 'Montera Jeff <MonteraJG@cdm com>
Subject Libby CSS DQOs

04/17/02 10 04 AM

Jim

Here are the new Libby DQOs If you have any questions please let me know

<<Section 3 doc>>
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(See attached file Section 3 doc)

Section 3
Data Quality Objectives

The DQO process is a series of seven planning steps based on the scientific methods that are designed to ensure that the type, quantity, and quality of environmental data used in decision-making are appropriate for the intended purpose The goal of the DQO process is to help assure that data of sufficient quality are obtained to support remedial response decisions, reduce overall costs of data sampling and analysis activities, and accelerate project planning and implementation The DQO process related to this CSS is present below which includes all information as required under the seven step process

A vermiculite ore body was discovered 7 miles northeast of Libby, Montana Mining of this ore body began in the early 1920s and continued until 1990 The vermiculite ore body contains naturally occurring deposits of asbestiform minerals including richterite, winchite, and tremolite/actinolite solution series (LAA) Vermiculite in processed and unprocessed forms was used throughout the city of Libby as soil amendments, fill material, insulation, and in other building materials Occupational exposure to these asbestiform minerals occurred during the mining, processing, and transportation of the ore Non-occupational exposures occurred as family members of workers were exposed though "worker take-home", ambient air levels, and from the presence of Libby vermiculite used as soil amendments, fill material, insulation, and in other building materials The exposure pathways are presented in Figure 3-1 Tremolite asbestos, a form of amphibole asbestos in Libby vermiculite, is considered the most toxic by many health scientists Exposure to these asbestos fibers can cause several adverse health effects including malignant mesothelioma, asbestosis, and lung cancer (ATSDR 2001)

In 1999, the EPA learned from a newspaper article that there was an abnormally high incidence of asbestosis in Libby, Montana and, therefore, began an investigation and emergency response in the area (Libby Asbestos Site) To date, EPA has identified sources of LAA that present immediate danger to human health (i e , hot spots) and have begun removal actions of these sources However, at the present, EPA does not know locations of other sources of LAA at residences and commercial sites that have not been investigated Because LAA-containing vermiculite products have been used randomly at unknown properties in the past, EPA has determined that each property in the study area requires screening for potential sources of LAA To this effect, the CSS was designed

The primary objective of the CSS is to determine the presence or absence of potential LAA sources at each property in the study area Potential LAA sources are classified into two categories

- Primary sources, which include ZAI and outdoor source materials that are greater than or equal to 1% LAA by weight (stockpiles of vermiculite, tremolite rocks, soils, etc)

- Secondary sources, which include contaminated indoor dust and outdoor soil source materials that are less than 1% LAA by weight Indicators for the presence of secondary indoor sources (LAA contaminated dust), are the past presence of ZAI, former or current occupants were persons employed at the mine or a former processing facility, and/or former or current occupants were diagnosed with an asbestos-related disease

In addition, the information collected during this study will be used for the following

- Identification of properties that require remediation (i e , contain primary sources)
- Identification of properties that require further investigation (i e , contain or have indicators of secondary sources)
- Quantification of relative LAA abundance in soils
- Identification of characteristics of properties that may increase chances of exposure to LAA
- Identification of characteristics of properties that may aid in the development of remedial decisions
- Determination of spatial trends
- Determination of future risk-based investigation and remedial decisions on a property by property basis

The planning team for this CSS includes Jim Christiansen (EPA Remedial Project Manager and decision maker), Mary Goldade (EPA Project Chemist), John McGuiggin (Volpe Center Project Manager), Tim Wall (CDM Project Manager for the Volpe Center), Jeff Montera (CDM Project Manager for the EPA), David Schroeder (CDM Site Manager), Dee Warren (CDM Project Scientist), Tommy Cook (CDM Project Scientist), and Krista Lippoldt (CDM QA Coordinator)

The information gathered to answer the primary objective will be collected from residential and commercial properties within the study area (target population) The spatial boundaries of these properties include everything between the top of the tallest structure to six-inches below the ground surface and within each property boundary The temporal boundaries include the time frame from when mining activities began at the mine site through the time of visual inspection and/or sampling at a property

The information for this study will be collected during field activities between May 12 and October 31, 2002 ~~Remedial actions will be conducted between May 12 and December 31, 2002~~ All personnel conducting the field work associated with this CSS

will be from CDM as a subcontractor to Volpe Budget and schedules related to the project are discussed in the work plan (CDM 2002)

The practical constraints that may interfere with the collection of accurate and complete information include, but are not limited to, lack of property access, misinformation from property owner/resident, unnoticed or hidden potential LAA sources, inclement weather conditions (i e , snow covered ground, frozen soils, overcast skies, etc), and lack of access to attics or wall cavities Overcast skies reduce the visibility of phyllosilicates (unexpanded vermiculite), snow prevents outdoor visual confirmation, and frozen soils limit composite soil sample homogenization

In order to meet the primary objective, a weight of evidence approach using visual inspection, verbal interviews, and analytical results will be implemented The following explains how each of these will be used

- Visual inspection will be used to determine the presence or absence of ZAI, primary outdoor sources (other than soil), and/or vermiculite present in building materials If during visual inspection any of these sources are observed in any amount they will be assumed to be present at the property

- Verbal interviews will be used to identify properties that used ZAI in the past, used vermiculite in building materials, had former or current occupants who were employed in vermiculite mining activities in Libby, and or had former or current occupants who were diagnosed with an asbestos related disease If during a verbal interview, any of these factors are identified, the potential of a LAA secondary source will be assumed

- Analytical results of soil samples will be used to identify outdoor soil sources If any analytical soil results are above the detection limit, at any level, the soil will be considered a potential LAA source The determination of a primary versus secondary source is explained above Use of a statistical sample design was considered but was not deemed appropriate for the purposes of this study

Two analytical screening methods (IR and SEM) were chosen to identify potential LAA in soil IR was chosen as the primary method because it is an efficient presence/absence technique with a relatively low reporting limit SEM was chosen as a secondary method for providing additional confidence in analytical results SEM is a less efficient presence/absence technique, but has a much lower reporting limit and allows some visual description of the fiber morphology Therefore, the action level to determine the presence or absence of potential LAA sources is the reporting limit of the IR method (0 1 percent by weight) The SEM method can quantify percent asbestos by weight to a lower limit, but would require a cost prohibitive amount of time per sample One-percent by weight was chosen to distinguish between a primary and secondary outdoor soil source This was chosen because this concentration had been used previously at the site as one of several criterion for

determining removal actions No health-based criteria for LAA have been developed for the site

For the purposes of the CSS, the detection of LAA at any concentration confirms the presence of LAA If during the study the reporting limit changes, the primary objective can still be accomplished because any detection of LAA at any concentration confirms the presence of LAA However, if the detection limit changes to greater than one-percent, the distinction between a primary source and secondary source cannot be made Although it is known that analytical error exists, for the purposes of this study, any LAA result greater than or equal to one percent is considered a primary source and any result less than 1% is considered a secondary source (i e , no gray area or decision error limits have been established)

Depending on the type (primary or secondary) of potential LAA sources, different alternative actions may be applicable The alternative actions that may occur at a property as a result of information gathered during the study include the following

- Remediation of interior, which includes removal of ZAI and cleaning
- Remediation of exterior, which includes removal of primary sources
- Further indoor sampling
- Further outdoor sampling
- No action

The determination of which decision(s) is appropriate will be made following the decision tree presented in Figure 3-2 These DQOs were reviewed and used to design the study/sampling process detailed in this SAP (Sections 4 and 5)